



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Adress: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
10/647,977	08/25/2003	Barry D. Kuban	895,675-004	2832	
72286	7590	08/06/2009			
LEYDIG, VOIT & MAYER, LTD	CHENG, JACQUELINE				
TWO PRUDENTIAL PLAZA, SUITE 4900	ART UNIT		PAPER NUMBER		
180 N. STETSON	3768				
CHICAGO, IL 60601-6731					
NOTIFICATION DATE	DELIVERY MODE				
08/06/2009	ELECTRONIC				

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Chgpatent@leydig.com
Chgpatent1@leydig.com

Office Action Summary	Application No. 10/647,977	Applicant(s) KUBAN ET AL.
	Examiner JACQUELINE CHENG	Art Unit 3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 22 June 2009.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-3-14,16-19,21-26,28-37 and 39-47 is/are pending in the application.
- 4a) Of the above claim(s) 47 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3-14,16-19,21-26,28-37 and 39-46 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 22, 2009 has been entered.

Response to Arguments

2. Applicant's arguments filed June 22, 2009 have been fully considered but they are not persuasive. The examiner respectfully disagrees with the applicant's arguments that Prause (US 6,148,095) in view of Slager (US 5,771,895) does not disclose the added limitation of allowing analysis of the blood vessel as if the blood vessel was standing still without post processing selection of desired blood-vessel data. Although Prause by itself does not teach allowing analysis of the blood vessel as if the blood vessel was standing still without post processing selection of desired blood-vessel data, Prause, as previously discussed teaches the desire to gate image acquisition so that heart and breathing motions in the images are suppressed (taking images as if the blood vessel was standing still) so it would be obvious to use a well known method of suppressing heart and breathing motions such as gated or triggered image such as disclosed by Slager. Although Slager does discuss in col. 12 lines 8-10, 28-53 post processing selection of desired blood-vessel data, as the applicant describes in their arguments on page 10, this post

processing is related to the images that are recorded during automated pull-back resulting in 25 images/second. Slager also discloses that other methods of pull-back can be used such as by applying equidistant pull-back triggered by ECG. It would be obvious and well known in the art that the equidistant pull-back triggered images do not require post processing as each image taken at the trigger (such as a R-wave trigger) is the image at the same relative position as the previous images as the vessel expands and/or contracts, permitting analysis of the blood-vessel as if the blood vessel was standing still, having no post processing needed as there is not multiple images at various points of the heart cycle. For these reasons it is believed that the previous rejection dated January 22, 2009 still stands and is repeated below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 3, 5-9, 11-14, 16-19, 21-29, 31-35, 37, 39, 40, and 42-46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Prause (US 6,148,095) in view of Slager (US 5,771,895).

5. Prause discloses a system and method of acquiring blood vessel data in the form of images comprising a catheter and data-gathering and processing devices of a data fusion unit on a programmed computer and a data storage unit (col. 4 line 8-35). The IVUS catheter is withdrawn at a fixed speed while the images are being taken (col. 5 line 5-8). The images can be

correlated so as to acquire the data during a certain heart phase of interest. This phase correlation uses an ECG to obtain the heart phase of interest to ensure the images are obtained under consistent conditions (col. 6 line 24-33). To suppress heart and breathing motions in the images a gated image acquisition can be used (col. 11 line 41 - 55). Although Pause does not explicitly disclose using ECG triggered image acquisition this is well known in the art and is often taught as either method can be used. An example of one such teaching is disclosed in Slager. Slager discloses a system and method of obtaining an accurate 3D reconstruction of a blood vessel using an IVUS with rotational transducers and using either ECG gated or ECG triggered data (abstract, col. 5 line 7-28). By using the triggering method instead of the gating method the sequence of cross-sectional ultrasound images can be immediately stacked without having to sort through a bunch of images, discarding the distorted images.

6. Pause also does not disclose that the transducer is adapted to rotate, but it would be obvious to one skilled in the art to use any comparable IVUS system with the system of Pause. Slager discloses such an IVUS system in which the transducers can rotate (col. 6 line 50-55) and wherein the rotational orientation can be identified (col. 3 line 50-54). So therefore it would be obvious to one skilled in the art at the time of the invention to combine Slager with Pause to further the utility of Pause to obtain data from any particular desired angle of the blood vessel and to quicken the image stacking time without having to sort through unneeded images.

7. **Claims 4 and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pause in view of Slager, and further in view of Vince (US 6,200,268 B1). Neither Pause nor Slager discloses a plurality of transducers spaced circumferentially, but it would be obvious to one

skilled in the art to use any comparable IVUS system with the system of Prause and Slager.

Vince discloses such an IVUS system that comprises an array of transducers circumferentially positioned (col. 3 line 50-53) so therefore it would be obvious to one skilled in the art at the time of the invention to combine Vince with Prause and Slager to further the utility of Prause in view of Slager to obtain data from any angle of the blood vessel without having to spend time rotating the catheter to position the transducer in the correct direction.

8. **Claims 10, 30, and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Prause in view Slager, further in view of Dias (US 5,284,148). Neither Prause nor Slager discloses acquiring the blood vessel data when the transducer is rotationally orientated in a predetermined location. However if there is a particular region of interest that one is trying to image, it would be obvious to need to have the transducer rotationally orientated in the correct (predetermined) direction/location. For example Dias discloses a intravascular probe where in the probe is rotated to a predetermined position and takes measurements (images) while at that predetermined position (col. 3 line 1-6).

Conclusion

9. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114.

Art Unit: 3768

See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACQUELINE CHENG whose telephone number is (571)272-5596. The examiner can normally be reached on M-F 10:00-6:30.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3768

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JC

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768